

CLAIMS

1. A heat control system comprising
 - a heat generator which heat is generated during the operation and temperature is necessarily maintained in a predetermined range,
 - 5 a vapor compression type refrigerator having a compressor, a radiator, an evaporator and a pressure reducing means to transfer heat from the lower temperature side to the higher temperature side,
 - 10 a heat exchanger for exchanging heat between refrigerant discharged from the compressor and prior to being fed into the radiator and medium for exchanging heat from the heat generator, and
 - 15 a bypass for guiding the refrigerant prior to being fed into the evaporator to the heat exchanger while detouring the evaporator and the compressor, wherein
- 20 the system operates in a heating mode for heating the medium with the high-temperature refrigerant discharged from the compressor, and a heat dissipation mode for cooling the medium with the refrigerant and dissipating heat absorbed from the medium via the radiator, and
- 25 during the heat dissipation mode, at least part of the refrigerant flowing out from the radiator is made to pass through the bypass.
- 30 2. A heat control system as defined by claim 1, wherein the bypass mainly guides a liquid-phase component of the refrigerant prior to being fed into the evaporator to the heat exchanger.
- 35 3. A heat control system as defined by claim 1, wherein the bypass guides the refrigerant discharged from the radiator to the heat exchanger prior to being decompressed by the pressure reducing means.
4. A heat control system as defined by claim 1, wherein the system further comprises means for controlling the heat exchange between the medium and the

refrigerant in the heat exchanger.

5. A heat control system as defined by claim 4, wherein the means for controlling the heat exchange operates in the heating mode when the temperature of the heat generator is lower than a first predetermined temperature, operates in the heat dissipation mode when the temperature of the heat generator is a second predetermined temperature above the first predetermined temperature or higher, and operates in a normal mode when
10 the temperature of the heat generator is within a range from the first predetermined temperature to the second predetermined temperature, in which the heat exchange between the medium and the refrigerant is made to stop.

15. A heat control system as defined by claim 1, wherein the heat generator is a heat engine.

7. A heat control system comprising
a heat generator which heat is generated during the operation and temperature is necessarily maintained in a predetermined range,
20 a vapor compression type refrigerator having a compressor, a radiator, an evaporator and a pressure reducing means to transfer heat from the lower temperature side to the higher temperature side,
a heat exchanger for exchanging heat
25 between refrigerant discharged from the compressor and prior to being fed into the radiator and medium for exchanging heat from the heat generator, and
a cooler for cooling the refrigerant fed into the heat exchanger, wherein
30 the system operates in a heating mode for heating the medium with the high-temperature refrigerant discharged from the compressor, and a heat dissipation mode for cooling the medium with the refrigerant and dissipating heat absorbed from the medium via the
35 radiator.

8. A heat control system as defined by claim 7, wherein the system further comprises means for

controlling the heat exchange between the medium and the refrigerant in the heat exchanger.

9. A heat control system as defined by claim 8,
wherein the means for controlling the heat exchange
5 operates in the heating mode when the temperature of the
heat generator is lower than a first predetermined
temperature, operates in the heat dissipation mode when
the temperature of the heat generator is a second
predetermined temperature above the first predetermined
10 temperature or higher, and operates in a normal mode when
the temperature of the heat generator is within a range
from the first predetermined temperature to the second
predetermined temperature, in which the heat exchange
between the medium and the refrigerant is made to stop.
15 10. A heat control system as defined by claim 7,
wherein the heat generator is a heat engine.